

CLAIMS

What is claimed is:

1. A sheet feeder for feeding individual sheets, one at a time, into a sheet handling machine, said sheet feeder comprising:
  - a platform having a front edge and a back edge for supporting a stack of said sheets; and
  - a feed head assembly positioned adjacent said front edge of said platform and adapted to acquire an individual sheet from said stack and feed said acquired sheet off said front edge of said platform, said feed head assembly comprising:
    - a vacuum plenum positioned towards said front edge of said platform;
    - a port plate closing said vacuum plenum and positioned substantially parallel to said sheets in said stack on said platform, said port plate having a front edge substantially aligned with said front edge of said platform;
    - a plurality of spaced ports through said port plate through which air can flow into said plenum;
    - means within said plenum for restricting the air flow through some of said plurality of ports in said port plate; and
    - at least one belt having openings therethrough mounted for movement through a closed loop around said vacuum plenum and across said port plate so that when openings in said at least one belt align with any of said plurality of spaced ports in said port plate, air can flow through the aligned holes in said belt and said spaced ports in said port plate to thereby acquire and remove the acquired sheet from said stack on said platform.

2. The sheet feeder of claim 1 wherein said means for restricting air flow through said ports comprises:

an intermediate plate positioned within said plenum and in abutment with said port plate, said intermediate plate  
5 having a restrictive passage therein which fluidly communicates said plenum with said some ports in said port plate having said restrictive air flow.

3. The sheet feeder of claim 2 including:

a cap plate positioned within said vacuum plenum and in abutment with said intermediate plate, said cap plate having at least one port therethrough, which fluidly communicates said  
5 plenum with said restrictive passage in said intermediate plate.

4. The sheet feeder of claim 3 wherein said restrictive passage in said intermediate plate is a tortuous channel through said intermediate plate and extending along a portion of the width of said intermediate plate.

5. The sheet feeder of claim 4 wherein said tortuous channel is in fluid communication with said at least one hole in said cap plate and with said ports in said port plate having said restrictive air flow.

6. The sheet feeder of claim 5 wherein said some ports having restrictive air flow are smaller than said remainder of said ports in said port plate.

7. The sheet feeder of claim 6 including:

an air jet directed onto the front of said stack on said platform to aid in separating said acquired sheet from the remainder of said sheets in said stack.

8. The sheet feeder of claim 5 wherein said ports in said port plate are comprised of a first set of rectangular openings positioned towards said back of said port plate and a second set of smaller rectangular openings positioned between said first  
5 set of openings and said front of said port plate.

9. The sheet feeder of claim 1 wherein said at least one belt comprises:

a plurality of belts positioned parallel to each other.

10. The sheet feeder of claim 1 wherein said sheet feeder is a top-feed, sheet feeder.

11. The sheet feeder of claim 1 wherein said sheet feeder is a bottom-feed sheet feeder.